MASTER OF SCIENCE
IN
MODELING, VIRTUAL ENVIRONMENTS, AND SIMULATION

MULTIMEDIA DATA CAPTURE WITH MULTICAST DISSEMINATION FOR ONLINE DISTANCE LEARNING

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Distance Learning Environments (DLEs) are elusive to define, difficult to successfully implement and costly due to their proprietary nature. With few open-source solutions, organizations are forced to invest large amounts of their resources in the procurement and support of proprietary products. Once an organization has chosen a particular solution, it becomes prohibitively expensive to choose another path later in the development process.

The resolution to these challenges is realized in the use of open-standards, non-proprietary solutions. This thesis explores the multiple definitions of DLEs, defines metrics of successful implementation and develops open-source solutions for the delivery of multimedia in the Distance Learning Environment. Through the use of the Java Media Framework API, multiple tools are created to increase the transmission, capture and availability of multimedia content. Development of this technology, through the use of case studies, leaves a legacy of lectures and knowledge on the Internet to entertain and enlighten future generations.

KEYWORDS: Multimedia, Multicast, Streaming Media, Real Server, Windows 2000, JMF, Java, Media Player, Real Player, Video Capture, Video-On-Demand, Web Learning, Digitalization, Distance Learning, Asynchronous Education